# Q25 DC Voltage Series Sensor Quick Start Guide

## Features

Self-contained, DC-operated sensors

For complete technical information about this product, including installation instructions, application requirements and guidelines, technical specifications, and accessories, go to www.bannerengineering.com and search 121518.



**WARNING:**
- **Do not use this device for personnel protection**
- Using this device for personnel protection could result in serious injury or death.
- This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A device failure or malfunction can cause either an energized (on) or de-energized (off) output condition.

## Models

*Opposed mode sensors*

| Model | Output | Range | Connections |
|---|---|---|---|
| **Q256E** | — | 20 m (65.6 ft) | 2 m (6.5 ft) cable |
| **Q25SN6R** | NPN | | 2 m (6.5 ft) cable |
| **Q25SP6R** | PNP | | 2 m (6.5 ft) cable |

*Polarized retroreflective mode sensors*

| Model | Output | Range | Connections |
|---|---|---|---|
| **Q25SN6LP** | NPN | 2 m (6.6 ft) | 2 m (6.5 ft) cable |
| **Q25SP6LP** | PNP | | 2 m (6.5 ft) cable |

*Fixed-field mode sensors*

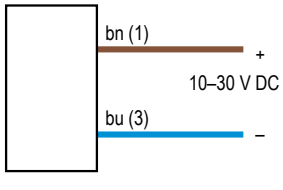
| Model | Output | Range | Connections |
|---|---|---|---|
| **Q25SP6FF25Q** | PNP | 25 mm (0.9 in) cutoff | 4-pin M12 male quick disconnect |
| **Q25SN6FF50** | NPN | 50 mm (1.9 in) cutoff | 2 m (6.5 ft) cable |
| **Q25SP6FF50** | PNP | | 2 m (6.5 ft) cable |
| **Q25SN6FF100Q** | NPN | 100 mm (3.9 in) cutoff | 4-pin M12 male quick disconnect |
| **Q25SP6FF100** | PNP | | 2 m (6.5 ft) cable |

Standard 2 m (6.5 ft) cable models are listed.

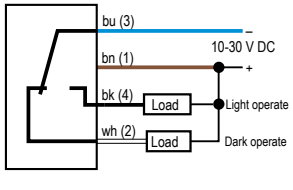
- To order the 4-pin M12 male quick disconnect model, add the suffix "Q" (for example, Q256EQ).
- A model with a quick disconnect connector requires a mating cable.

## Wiring Diagrams

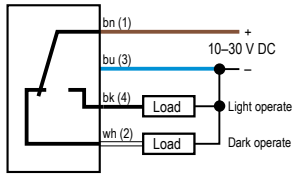
*Cabled emitters*




*NPN standard*




*PNP standard*




**Key:**
1 = Brown
2 = White
3 = Blue
4 = Black

Continued on page 2

Original Instructions
13-May-26

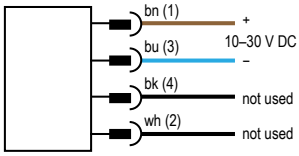
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116165
p/n: 116165 Rev B

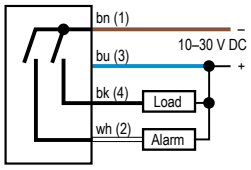
ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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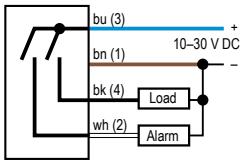
*Quick disconnect emitters*



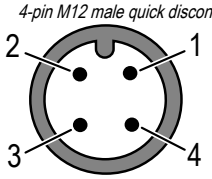

*NPN alarm*




*PNP alarm*




*4-pin M12 male quick disconnect*




In light operate (LO) mode, the output is ON when the target returns the same or more light to the sensor and OFF when the sensor detects less light than the configured/taught target. In **opposed and retroreflective sensing modes**, light operate is active when the beam is unblocked. In **diffuse, fixed field, and adjustable field sensor modes**, light operate is active when the target is present.

In dark operate (DO) mode, the output is ON when the target returns less light to the sensor than the configured target and OFF when the sensor detects more light than the configured/ taught target. In **opposed and retroreflective sensing modes**, dark operate is active when the beam is blocked. In **diffuse, fixed field, and adjustable field sensor modes**, dark operate is active when the target is absent.

## Specifications

**Supply Voltage and Current**

10 V DC to 30 V DC (10% max. ripple); supply current (exclusive of load current):

**Emitters:** 25 mA

**Receivers:** 20 mA

**Polarized Retroreflective:** 30 mA

**Fixed-Field:** 35 mA

**Sensing Beam (LED)**

Opposed mode models: Infrared, 950 nm

Polarized retroreflective models: Visible red, 680 nm

Fixed-field models: Infrared, 880 nm

**Supply Protection Circuitry**

Protected against reverse polarity and transient voltages

**Output Configuration**

SPDT solid-state DC switch; NPN (current sinking) or PNP (current sourcing) outputs, depending on model

**Light Operate:** N.O. (normally open) output conducts when sensor sees its own (or the emitter's) modulated light

**Dark Operate:** N.C. (normally closed) output conducts when the sensor sees dark; the N.C. output may be wired as a normally open marginal signal alarm output, depending upon hookup to power supply

**Environmental Rating**

Leakproof design rated NEMA 6P, DIN 40050 (IP69K per ISO 20653)

**Construction**

PBT polyester housing; polycarbonate (opposed-mode) or acrylic lens

**Indicators**

Two LEDs (Green and Amber)

**Green ON steady:** Power to the sensor is ON

**Green flashing:** The output is overloaded

**Amber ON steady:** N.O. output is conducting

**Amber flashing:** excess gain marginal (1 to 1.5 times) in light condition

**Connections**

2 m (6.5 ft) attached cable, 9 m (29.5 ft) attached cable, or 4-pin M12 quick-disconnect fitting

**Output Rating**

150 mA maximum (each) in standard hookup. When wired for alarm output, the total load may not exceed 150 mA.

**OFF-state leakage current:** < 1 µA at 30 V DC

**ON-state saturation voltage:** < 1 V at 10 mA DC; < 1.5 V at 150 mA DC

**Output Protection Circuitry**

Protected against false pulse on power-up and continuous overload or short circuit of outputs

**Output Response Time**

**Opposed mode:** 3 ms ON, 1.5 ms OFF

**Retro, Fixed-Field and Diffuse:** 3 ms ON and OFF

**NOTE:** 100 ms delay on power-up; outputs do not conduct during this time

**Repeatability**

**Opposed mode:** 375 µs

**Retro, Fixed-Field and Diffuse:** 750 µs

Repeatability and response are independent of signal strength

**Operating Conditions**

–40 °C to +70 °C (–40 °F to +158 °F)

90% at +50 °C maximum relative humidity (non-condensing)

**Vibration and Mechanical Shock**

All models meet MIL-STD-202F, Method 201A (Vibration: 10 Hz to 60 Hz maximum, 0.06 inch (1.52 mm) double amplitude, 10G acceleration) requirements. Method 213B conditions H&I. (Shock: 75G with device operating; 100G for non-operation)

**Certifications**

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1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

**Required Overcurrent Protection**

**WARNING:** Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

| Supply Wiring (AWG) | Required Overcurrent Protection (A) | Supply Wiring (AWG) | Required Overcurrent Protection (A) |
|---|---|---|---|
| 20 | 5.0 | 26 | 1.0 |
| 22 | 3.0 | 28 | 0.8 |
| 24 | 2.0 | 30 | 0.5 |

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